III.   REMARKS

Claims 1-13 are pending in this Application. By this Amendment, claims 1, 5, and 9 have been amended, and no claims have been canceled. Applicants are not conceding in this application that those claims are not patentable over the art cited by the Office, as the present claim amendments are only for facilitating expeditious prosecution of the subject matter. Applicants do not acquiesce in the correctness of the rejections and reserve the right to present specific arguments regarding any rejected claims not specifically addressed. Further, Applicants reserve the right to pursue the full scope of the subject matter of the original claims in a subsequent patent application that claims priority to the instant application. Reconsideration in view of the following remarks is respectfully requested.

Rejections under 35 U.S.C. § 101

In the Office Action, claims 5-8 are rejected under 35 U.S.C. § 101 as allegedly being directed to non-statutory subject matter. Specifically, the Office asserts that claim 5 is drawn to an abstract dictionary data structure stored in a computer which does not produce a "useful, concrete, and tangible result."

Applicants note, initially, that the Federal Circuit's recent decision in *In Re Bilski* specifically abandoned the "useful, concrete and tangible" test for determining patent-eligible subject matter under 35 U.S.C. § 101. (*In Re Bilski*, No. 2007-1130 (Slip Op. at n.19, Oct. 30, 2008) ("...those portions of our opinions in <u>State Street</u> and <u>AT&T</u> relying solely on a 'useful, concrete and tangible result' analysis should no longer be relied on.").) Applicants acknowledge that the instant rejection was made prior to the Federal Circuit's decision in *Bilski*, but respectfully assert that, in view of *Bilski*, the "useful, concrete and tangible" test applied by the Office may no longer serve as a basis for rejection under 35 U.S.C. § 101.

In *Bilski*, the Federal Circuit outlined a two pronged analysis as the sole proper test for determining whether a process is directed to patentable subject matter. Under the first prong, a process is directed to patentable subject matter if it is tied to a particular machine or apparatus. (*In Re Bilski*, No. 2007-1130, Slip Op. at p. 10 (Fed. Cir. Oct. 30, 2008).) Under the second prong, a process is directed to patentable subject matter if it transforms a particular article into a different state or thing. (*Id.*) In the analysis under the second prong, the particular article can be a physical object or substance or an electronic signal representative of a physical object or substance. (*Id.*, p. 28.) To this extent, the analysis utilized by the Office in the rejection of claims 5-8 is not a valid analysis for determining whether a process claim is directed to patentable subject matter.

Applying the *Bilski* test to claim 5, Applicants respectfully submit that the claimed invention qualifies as patentable subject matter as being directed to a process that is tied to a particular machine or apparatus. Applicants have amended claim 5 herein to provide improved clarity with regard to the aforementioned apparatus, reciting the feature of "<u>wherein the computer further comprises: a data carrier including one of a magnetic computer disk and an optical computer disk, and a processor</u>." Support for this amendment may be found in the specification as field in at least paragraph [0052]. On the basis of at least this amendment, the previously presented claim features, and the remarks above, Applicants respectfully submit that claim 5 recites patentable subject matter under § 101. Applicants further submit that dependent claims 6-8, which incorporate the features described above by reference, recite patentable subject matter for the same reasons as claim 5.

Rejections under 35 U.S.C. § 103(a)

In the Office Action, claims 1-13 are rejected under 35 U.S.C. § 103(a). Claims 1, 3, 5, 7, 9, 11, and 13 are rejected as being allegedly unpatentable over Kaplan et al. (US Pat. 5,594,641, hereinafter, "Kaplan") in view of Beesley et al., *Draft: Finite-State Morphology: Xerox Tool and Techniques* (1999), hereinafter, "Beesley"; claims 2, 6, and 10 are rejected as being allegedly unpatentable over Kaplan in view of Beesley and Lee et al. (US Pat. 4,939,639, hereinafter, "Lee"); and claims 4, 8, and 12 are rejected as being allegedly unpatentable over Kaplan in view of Beesley and Schabes et al. (US Pat. 6,424,983, hereinafter, "Schabes").

With regard to independent claims 1 and 5, which the Office treats together (Office Action, p. 5), Applicants submit that the Kaplan and Beesley, either alone or in combination, do not teach or suggest each and every feature of the claimed invention.

For example, Applicants submit that the combination of Kaplan and Beesley does not teach, suggest, or make obvious the feature of:

> generating, for each of the orthographic variations, a cut and paste code,
> wherein the cut and paste code includes code which indicates how many characters should be cut from the end of a surface form of a word and pasted to produce a particular variation,
> wherein the cut and paste code is extended by a gloss code that indicates whether at least part of the orthographic variation should be converted between upper and lower case" (claim 1, lines 6-12),

which has been amended herein merely to provide improved clarity. In the Office Action, the Office asserts that Kaplan teaches the above-mentioned feature (as previously presented) in a variety of passages (Office Action, pp. 5-6).

Kaplan, however, teaches a substantially different and non-analogous technique for text indexing and retrieval. Kaplan teaches the use of finite state transducers (FSTs) for encoding sets of ordered pairs of strings, such as {<arrive arrive>, <arrive arriving>, <arrive arrived>,

<arrive arrives>, <arrive arrival>} in a simple FST. (Col. 4, lines 19-23.) Kaplan's FSTs are used to represent any "regular relation" including finite lists of ordered string pairs, in addition to "certain kinds of infinite collections of ordered pairs." (*Id.*, lines 23-26.) The ordered pairs are encoded as an FST data structure, which can be used by a computer processor to get all the items associated with any given input. Using the example of ordered string pairs above, this means that given the stem "arrive," one could get all of the various forms ("arriving," "arrived," "arrives," "arrival," etc.); or given one of the variant forms ("arrival"), one could get its stem ("arrive"). (*Id.*, lines 29-32.)

A two-level FST can then be used to map a particular word to its lexical representation, as depicted in Kaplan's FIG. 2 (continuing with the "arrive" stem example described above). In FIG. 2, the start state is labeled with an 's', and the end state is labeled with a '◎' symbol. The 'ε' (epsilon) symbols, used in place of letters at the end of the shorter word ("arrive"), act as a null symbol to allow the FST to continue to process even where the stem word ("arrive") and the generated word ("arriving") do not have comparable letters, i.e., "arrive" has six letters, while "arriving" has eight; thus, the "n" and "g" in "arriving" do not have comparable letters in "arrive." (*See*, Kaplan, FIG. 2; col. 4, lines 40-44.) These word forms can further be tagged with morphological tags indicating that, e.g., "arriving" is the present participle form of "arrive"; part of speech tags, etc., which can be constructed, manipulated, compressed, and applied. (*Id.*, col. 4, line 60 – col. 5, line 5.) Additional FSTs may be created to apply additional rules (e.g., that "lexical N is realized as surface m if and only if it is followed by a p on the lexical side...") (col. 7, lines 60-62), or facts not explicitly represented in a rule (e.g., that "lexical N's are realized as n in all other cases..." (col. 8, lines 7-10).

Applicants respectfully submit that Kaplan's teaching of inserting an ε, or null symbol in

an end position, thus allowing the FST to continue to process as described above, fails to teach or suggest the claimed invention, including the features of generating and storing, for each of the orthographic variations, "a cut and paste code, wherein the cut and paste code includes code which indicates how many characters should be cut from the end of a surface form of a word and pasted to produce a particular variation" (claim 1, lines 6-9). In fact, Kaplan does not appear to teach cutting or pasting of any number of characters, much less a cut and paste code. Because Beesley neither cures, nor is alleged to cure this defect, Applicants submit that the rejections of claims 1 and 5 under § 103(a) are defective.

With further regard to claims 1 and 5, Applicants submit that the combination of Kaplan and Beesley fails to teach the claimed invention including the feature of "generating ... a cut and paste code ... wherein the cut and paste code is extended by a gloss code that indicates whether at least part of the orthographic variation should be converted between upper and lower case" (claim 1, lines 6, 10-12). Applicants maintain that nowhere in the cited passage of Beesley is it specified that such an indication takes place. Rather, Beesley establishes that "a relation may contain an infinite number of pairs," and that one such relation is "the mapping of all lower-case strings to the corresponding upper-case strings." (Beesley, p. 23, fourth full paragraph.) "The upper language is the infinite language of lower-case strings, the lower language contains all the upper-case strings, and the relation itself is a mapping that preserves the word." (*Id.*) This lower/upper case relation may be thought of as the representation of a "simple orthographic rule." (*Id.*) Accordingly, however, like Kaplan, Beesley fails to teach the feature of "generating ... a cut and paste code ... wherein the cut and paste code is extended by a gloss code that indicates whether at least part of the orthographic variation *should* be converted between upper and lower case" (claim 1, lines 6, 10-12 (emphasis added)). Beesley provides no guidance on

where parts of orthographic variations should be converted. Thus, Applicants submit that the rejections under § 103(a) are flawed.

With respect to claim 9, Applicants submit that the Office fails, *inter alia*, to show that the proposed combination of Kaplan and Beesley teaches or suggests a computer program product encoded on a computer readable storage medium comprising computer program means executable by a computer that includes all the features claimed therein. For example, for reasons that should be clear from the discussion of the proposed combination of Kaplan and Beesley above, Applicant submits that the proposed combination of Kaplan and Beesley fails to teach or suggest the computer program product of claim 9, including the feature of "generating, for each of the orthographic variations, a cut and paste code, wherein the cut and paste code includes code which indicates how many characters should be cut from the end of a surface form of a word and pasted to produce a particular variation, wherein the cut and paste code is extended by a gloss code that indicates whether at least part of the orthographic variation should be converted between upper and lower case." As a result, Applicants respectfully request withdrawal of the rejections of claim 9 as allegedly being unpatentable over Kaplan and Beesley.

With regard to dependent claims 2-4, 6-8, and 10-13, Applicants respectfully submit that these claims are allowable for reasons stated above relative to independent claims 1, 5, and 9, as well as for their own additional claimed subject matter. With further regard to dependent claims 2, 6, and 10; and 4, 8, and 12; Applicants additionally submit that Lee and Schabes respectively fail to cure the defects described above with regard to claims 1, 5, and 9. Accordingly, Applicants respectfully request that the Office withdraw the rejections under 35 U.S.C. § 103(a) to claims 2-4, 6-8, and 10-13.

IV.   CONCLUSION

Applicants respectfully submit that the Application as presented is in condition for allowance. Should the Examiner believe that anything further is necessary in order to place the application in better condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

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